APPROVAL TO CONSTRUCT/MODIFY
A STATIONARY SOURCE

In compliance with provisions of the Clean Air Act, as amended (42 U.S.C. 7401 et seq.), the Guam Power Authority is granted approval to construct and operate two 40 megawatt diesel-fired internal combustion engines to be located at the Cabras Power Plant, Guam, in accordance with the plans submitted with the applications and with the Federal regulations governing the Prevention of Significant Air Quality Deterioration (40 C.F.R. 52.21) and other conditions attached to this document and made a part of this approval.

Failure to comply with any condition or term set forth in this approval will be considered grounds for enforcement action pursuant to Section 113 of the Clean Air Act.

This Approval to Construct/Modify a stationary source grants no relief from the responsibility for compliance with any other applicable provision of 40 CFR Parts 52, 60 and 61 or any applicable Federal, State, or local air quality regulations.

This approval shall become effective immediately upon receipt by the Guam Power Authority.

Dated: 5.16.96

Director
Air and Toxics Division

PERMIT CONDITIONS

I. Permit Expiration

This approval to Construct/Modify shall become invalid (1) if construction is not commenced (as defined in 40 CFR 52.21(b)(8)) within 18 months after the approval takes effect, (2) if construction is discontinued for a period of 18 months or more, or (3) if construction is not completed within a reasonable time.

II. Notification of Commencement of Construction and Startup

The Regional Administrator shall be notified in writing of the anticipated date of initial startup (as defined in 40 CFR 60.2(o)) of each facility of the source not more than sixty (60) days nor less than thirty (30) days prior to such date and shall be notified in writing of the actual data of commencement of construction and startup within fifteen (15) days after such date.

III. Facilities Operation

All equipment, facilities, and systems installed or used to achieve compliance with the terms and conditions of this Approval to Construct/Modify shall at all times be maintained in good working order and be operated as efficiently as possible so as to minimize air pollutant emissions.

IV. Malfunction

The Regional Administrator shall be notified by telephone within 48 hours following any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner which results in an increase in emissions above any allowable emissions limit stated in Section X of these conditions. In addition, the Regional Administrator shall be notified in writing within fifteen (15) days of any such failure. This notification shall include a description of the malfunctioning equipment or abnormal operation, the date of the initial failure, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed under Section X of these conditions, and the methods utilized to restore normal operations. Compliance with this malfunction notification provisions shall not excuse or otherwise constitute a defense to any violations of this permit or of any law or regulations which such malfunction may cause.

V. Right to Entry

The Regional Administrator, the head of the State Air Pollution Control Agency, the head of the responsible local Air Pollution Control Agency, and/or their authorized representative, upon the presentation of credentials, shall be permitted:

A. to enter upon the premises where the source is located or in which any records are required to be kept under the terms and conditions of this Approval to Construct/Modify; and

B. at reasonable times to have access to and copy any records required to be kept under the terms and conditions of the Approval to Construct/Modify: and

C. to inspect any equipment, operation, or method required in this Approval to Construct/Modify; and

D. to sample emissions from the source.

VI. Transfer of Ownership

In the event of any changes in control or ownership of facilities to be constructed or modified, this Approval to Construct/Modify shall be binding on all subsequent owners and operators. The applicant shall notify the succeeding owner and operator of the existence of this Approval to Construct/Modify and its conditions by letter, a copy of which shall be forwarded to the Regional Administrator and the State and local Air Pollution Control Agency.

VII. Severability

The provisions of this Approval to Construct/Modify are severable, and, if any provision of this Approval to Construct/Modify is held invalid, the remainder of this Approval to Construct/Modify shall not be affected thereby.

VIII. Other Applicable Regulations

The owner and operator of the proposed project shall construct and operate the proposed stationary source in compliance with all other applicable provisions of 40 CFR Parts 52, 60 and 61 and all other applicable federal, state and local air quality regulations.

IX. Paperwork Reduction Act

Any requirements established by this permit for the gathering and reporting of information are not subject to review by the Office of Management and Budget ("OMB") under the Paperwork Reduction Act because this permit is not an "information collection request" within the meaning of 44 U.S.C. §§ 3502(4) & (11), 3507, 3512, and 3518. Furthermore, this permit and any information gathering and reporting requirements established by this permit are exempt from OMB review under the Paperwork Reduction Act because it is directed to fewer than ten persons. 44 U.S.C. § 3502(4), (11); 5 C.F.R. § 1320.5(a).

X. Special Conditions

A. Certification

GPA shall notify the EPA in writing of compliance with Special Conditions X.B and X.J and shall make such notification within (15) days of such compliance. This letter must be signed by a responsible representative of GPA.

B. Air Pollution Control Equipment

GPA shall install, continuously operate and maintain the following air pollution controls to minimize emissions. Controls listed shall be fully operational upon startup of the proposed equipment and, prior to optimization testing, shall be operated at the following rates:

1. Fuel Injection Timing Retard (FITR) of 2 degrees (or equivalent).

2. Water/fuel emulsification at an injection rate of not less than 33% water in the total water/fuel mixture by volume.

Upon completion of the optimization testing, EPA may set a new degree of FITR or a new percentage of water in the total water/fuel mixture.

C. Performance Tests

1. Within 60 days of achieving the maximum production rate of the proposed equipment but not later than 180 days after initial startup of the equipment as defined in 40 CFR 60.2(o), and at such other times as specified by the EPA, GPA shall conduct performance tests for NO_x, SO_2, CO, VOC and PM and furnish the EPA (Attn: A-3-3) a written report of the results of such test. The tests for NO_x, SO_2, CO, VOC and PM shall be conducted on an annual basis and at the maximum operating capacity of the facilities being tested. Upon written request (Attn: A-3-3) from GPA, EPA may approve the conducting of performance test as a lower specified production rate. After initial performance tests and upon written request and adequate justification from GPA, EPA may waive a specified annual test for the facility.

2. Performance tests for the emissions of SO_2, NO_x, CO, VOC and PM shall be conducted and the results reported in accordance with the test methods set forth in 40 CFR 60, Part 60.8 and Appendix A. The following test methods shall be used:

a. Performance tests for the emissions of SO_2 shall be conducted using EPA Methods 1-4 and 6C.

b. Performance tests for the emissions of PM shall be conducted using EPA Methods 1-5.

c. Performance tests for the emissions of NO_x shall be conducted using EPA Methods 1-4 and 7E.

d. Performance tests for the emissions of CO shall be conducted using EPA Methods 1-4 and 10.

e. Performance tests for the emissions of VOC shall be conducted using EPA Methods 1-4 and 25A.

The EPA (Attn: A-3-3) shall be notified in writing at least 30 days prior to such test to allow time for the development of an approvable performance test plan and to arrange for an observer to be present at the test.

Such prior approval shall minimize the possibility of EPA rejection of test results for procedural deficiencies. In lieu of the above-mentioned test methods, equivalent methods may be used with prior written approval from the EPA.

3. For performance test purposes, sampling ports, platforms and access shall be provided by GPA on the diesel engine exhaust systems in accordance with 40 CFR 60.8(e).

D. Operating Limitations

1. The sulfur content in the fuel oil used to fire the diesel engine shall not exceed 2.0 percent by weight during periods when the wind is blowing off-shore and 1.19 percent when the wind is blowing on-shore. Off-shore and on-shore wind directions are defined in the protocol for fuel switching titled *Cabras-Piti Area Intermittent Control Strategy* and referenced in 40 CFR 69.11(a)(3)(i).

2. GPA shall install water meters and non-resetting fuel meters to monitor and record the fuel consumption and the percent of water in total fuel mix being fired in the diesel engines. All information, including fuel sulfur content, fuel use, percent water in the fuel mix and hours of operation, shall be recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, calculation and record.

3. GPA shall not operate any of the Cabras diesel engines below 50 percent of rated load except during periods of startup, shutdown, testing or maintenance.

E. Emissions Limits for SO_2

On and after the date of startup, GPA shall not discharge or cause the discharge into the atmosphere from each diesel engine SO_2 in excess of 738 lbs/hr averaged over a three hour period.

F. Emission Limits for PM

On and after the date of startup, GPA shall not discharge or cause the discharge into the atmosphere from each diesel engine PM_{10} in excess of 93.5 lbs/hr averaged over a three hour period.

On or after the date of startup, GPA shall not discharge or cause the discharge into the atmosphere from the engine exhaust stack gases which exhibit an opacity of 20% or greater for any period of periods aggregating more than six minutes in any one hour except during periods of startup or shutdown.

EPA may set a new lower allowable emission rate for the above emission limits after reviewing the performance test results required under Special Conditions C.

If the PM emission limit is revised, the difference between the PM emission limit set forth above and a revised lower PM emission limit shall not be allowed as an emission offset for future construction or modification.

G. Emission Limits for NO_x

On and after the date of startup, GPA shall not discharge or cause the discharge into the atmosphere from each diesel engine NO_x in excess of the more stringent of 1219 lbs/hr or 950 ppm at 15% O_2 averaged over a three hour period.

Subsequent to full scale operation of Unit No. 4, GPA shall conduct an optimization study of the FITR and water emulsification systems. The study shall consist of varying the degree of FITR (if possible) and the percentage of water in the total fuel mix to determine the optimal NO_x removal efficiency, taking into account impacts on fuel efficiency and on SO_2 and CO emission rates. Upon completion of the study and after reviewing the performance test results EPA may set a new lower allowable emission rate and/or a new degree of FITR and/or rate of water/fuel emulsification.

If the NO_x emission limit is revised, the difference between the NO_x emission limit set forth above and a revised lower NO_x emission limit shall not be allowed as an emission offset for future construction or modification.

H. Emission Limits for CO

On and after the date of startup, GPA shall not discharge or cause the discharge into the atmosphere from each diesel engine CO in excess of 110 lbs/hr averaged over a three hour period.

EPA may set a new lower allowable emission rate for the above emission limits after reviewing the performance test results required under Special Conditions C. If the CO emission limit is revised, the difference between the CO emission limit set forth above and a revised lower CO emission limit shall not be allowed as an emission offset for future construction or modification.

I. Emission Limits for VOC

On and after the date of startup, GPA shall not discharge or cause the discharge into the atmosphere from each diesel engine VOC in excess of 96 lbs/hr averaged over a three hour period.

EPA may set a new lower allowable emission rate for the above emission limits after reviewing the performance test results required under Special Conditions C.

If the VOC emission limit is revised, the difference between the VOC emission limit set forth above and a revised lower VOC emission limit shall not be allowed as an emission offset for future construction or modification.

J. Continuous/Predictive Emission Monitoring

1. Prior to the date of startup and thereafter, GPA shall install, maintain and operate the following continuous monitoring systems (CEM) in the main stack:

    a. A continuous monitoring system to measure stack gas NO_x concentrations. The system shall meet EPA monitoring performance specification (40 CFR 60.13 and 40 CFR 60, Appendix B, Performance Specifications 2 and 3).

    b. A continuous monitoring system to measure stack gas volumetric flow rates. The system shall meet EPA performance specifications (40 CFR Part 52, Appendix E).

2. Alternatively, instead of a CEM system, GPA may install a Predictive Emission Monitoring system (PEM) for determining stack gas volumetric flow rates and NOx concentrations. The system shall monitor engine operating conditions and predict NOx emission rates as specified in a plan submitted to EPA for approval within 360 days of the initial startup of the facility. The plan shall identify the operating conditions to be monitored and meet all of the requirements of 40 CFR 75, Subpart E, including an application for certification of an alternative monitoring system.

3. GPA shall maintain a file of all measurements, including continuous monitoring systems evaluations; all continuous monitoring systems or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; performance and all other information required by 40 CFR 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports and records.

4. GPA shall notify EPA (Attn: A-3-3) of the date which demonstration for the continuous monitoring system (if applicable) performance commences (40 CFR 60.13). This date shall be no later than 60 days after startup.

5. GPA shall submit a written report of all excess emissions to EPA (Attn: A-3-3) for every calendar quarter. The report shall include the following:

    a. The magnitude of the excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factors used, and the date and time of commencement and compilation of each time period of excess emissions.

    b. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the engine exhaust systems. The nature and cause of any malfunction (if known) and the corrective action taken or preventative measures adopted shall also be reported.

    c. The date and time identifying each period during which the continuous monitoring system or PEM was inoperative except for zero and span checks, and the nature of the system repairs or adjustments.

d. When no excess emissions have occurred or the continuous monitoring system or PEM has not been imperative, repaired, or adjusted, such information shall be stated in the report.

e. Excess emissions shall be defined as any 3-hour period during which the average emissions of NO_x, as measured by the CEM, or predicted by the PEM, exceeds the maximum emission limits set forth in Condition X.G.

6. Excess emission indicted by the CEM or PEM system shall be considered violations of the applicable emission limit for the purpose of this permit.

7. If a CEM system is installed, then not less than 90 days prior to the date of startup of the facility, GPA shall submit to the EPA (Attn: A-3-3) a quality assurance project plan for the certification and operation of the continuous emission monitors. Such a plan shall conform to the EPA document "Guidelines for Developing a Quality Assurance Project Plan" (QAMS 005/80). Continuous emission monitoring may not begin until the QA project plan has been approved by the EPA Region 9.

XI. Agency Notifications

All correspondence as required by this Approval to Construct/Modify shall be forwarded to:

A. Director, Air and Toxics Division (Attn: A-3-3)
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

B. Administrator
Guam Environmental Protection Agency
P.O. Box 22439 GMF
Barrigada, Guam 96921

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

May 16, 1996

IN REPLY A-5-1
REFER TO: NSR 4-11
GU 93-01

Mr. John Benavente
General Manager
Guam Power Authority
P.O. Box 2977
Agana, Guam, U.S.A. 96910-2977

Dear Mr. Benavente:

In accordance with provisions of the Clean Air Act, as amended (42 U.S.C. 7401 et seq.), the Environmental Protection Agency has reviewed the application for an Approval to Construct submitted by the Guam Power Authority for the construction and operation of two low-speed base-load diesel electric generators (nominally rated at 40 MW) to be located at the Cabras Power Plant, Guam.

A request for public comment regarding EPA's proposed action on the above application has been published. After consideration of the expressed views of all interested persons (including State and local agencies), and pertinent Federal statutes and regulations, the EPA hereby issues the enclosed Approval to Construct/Modify a Stationary Source for the facilities described above. This action does not constitute a significant change from the proposed action set forth and offered for public comment.

This Approval to Construct/Modify shall take effect immediately.

Should you have any questions regarding this matter, please contact Bob Baker of our New Source Section at (415) 744-1258.

Sincerely,

David P. Howekamp
Director
Air and Toxics Division

Enclosures

cc: Guam EPA
Peg Young, R.W. Beck

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

April 16, 1996

Richard Young
General Manager
Guam Power Authority
P.O. Box 2977
Agana, Guam 96910-2977

Dear Mr. Young:

This letter clarifies and amends my letter to you, dated February 23, 1996. This letter also memorializes communications between members of Guam Power Authority ("GPA"), personnel at R.W. Beck (GPA's consultant), Alan J. Gilbert, Esq. (counsel for GPA), and personnel at EPA Region 9. All of these communications concern the status of Cabras Unit No. 4.

Cabras Units No.s 3 and 4 are the subject of a waiver issued by EPA pursuant to section 325 of the Clean Air Act. Under that waiver, GPA was allowed to operate Cabras Unit No. 3 and continue construction of Cabras Unit No. 4 prior to the issuance of the PSD permits. My February 23 letter allowed GPA to commence and complete operational testing on Cabras Unit No. 4 prior to issuance of a final PSD permit. For purposes of the waiver, we considered the operational testing of Cabras Unit No. 4 to be part of the continued construction of that unit.

My February 23 letter stated that performance testing of Cabras Unit No. 4 would not be allowed because it "would appear to involve the full and continuous operation of Cabras Unit No. 4. This type of operation would not be covered by the conditions of the waiver." Subsequent communications between GPA and Region 9 indicate that performance testing does not involve full and continuous operation of the unit. Therefore, for purposes of the waiver, we consider the performance testing of Cabras Unit No. 4 to be part of the continued construction of that unit.

If you have any questions regarding this matter, please have your staff contact Bob Baker at (415) 744-1258, or have your counsel contact Allan Zabel at (415) 744-1329.

Sincerely,

David P. Howekamp
Director
Air & Toxics Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

February 23, 1996

Richard Young
General Manager
Guam Power Authority
P.O. Box 2977
Agana, Guam 96910-2977

Dear Mr. Young:

This letter is in response to a letter, dated February 22,. 1996, from Robert J. Schafish of R.W. Beck to Norman L. Lovelace of U.S. EPA, Region 9. This letter also memorializes conversations between members of Guam Power Authority ("GPA"), personnel at R.W. Beck (GPA's consultant), Alan J. Gilbert, Esq. (counsel for GPA), and personnel at EPA Region 9. All of these communications concern the status of Cabras Unit No. 4.

According to Mr. Schafish's February 22 letter, Cabras Unit No. 4 is scheduled to commence operational testing on April 13, 1996. I am informed by Bob Baker of my staff that the PSD permits for Cabras Units No.s 3 and 4 should be finalized around that same time.

As you know, Cabras Units No.s 3 and 4 are the subject of a waiver issued by EPA pursuant to section 325 of the Clean Air Act. Under that waiver, GPA was allowed to operate Cabras Unit No. 3 and continue construction of Cabras Unit No. 4 prior to the issuance of the PSD permits. For purposes of the waiver, we consider th operational testing of Cabras Unit No. 4 to be part of the continued construction of that unit. Therefore, GPA may perform that testing prior to the issuance of the PSD permit for Cabras Unit No. 4. However, the 20-day performance mentioned in the February 22 letter would appear to involve the full and continuous operation of Cabras Unit No. 4. This type of operation would not be covered by the conditions of the waiver.

If you have any questions regarding this matter, please have your staff contact Bob Baker at (415) 744-1258, or have your counsel contact Allan Zabel at (415) 744-1329.

Sincerely,

David P. Howekamp
Director
Air & Toxics Division

Permit F.C.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, Ca. 94105-3901

November 4, 1993

IN REPLY A-5-1
REFER TO: NSR 4-11
GU 93-01

Mr. John Benavente
General Manager
Guam Power Authority
P.O. Box 2977
Agana, Guam, U.S.A. 96910-2977

Dear Mr. Benavente:

This is in response to your Prevention of Significant Deterioration application for an Environmental Protection Agency Approval to Construct, dated October 14, 1992, and received by this office on October 16, 1992 and with additional information submitted on January 25, 1993. The application is for the construction and operation of a low-speed base-load diesel electric generator (nominally rated at 40 MW) to be located at the Cabras Power Plant.

After our initial review of the above application, EPA found it to be incomplete with additional information concerning the air quality analyses and the BACT analyses necessary before we could continue processing the permit. Additional information was submitted and, in March 1993, collection of on-site meteorological data commenced. In August 1993, Guam was granted a 325 exemption under the Clean Air Act. For Cabras Diesel No. 1 the exemption specifically states in 40 CFR 69.11(a)(1)(iii) that "the PSD application for each electric generating unit shall be deemed complete without the submittal of the required one year of on-site meteorological data". Therefore, EPA hereby deems the PSD application for Cabras Diesel No. 1 to be complete. However, it is possible that clarifying information on one or more parts of the application may be required before we can issue a draft permit.

This notification of completeness does not imply that the EPA agrees with any analyses, conclusions or positions contained in the application. Also, if you should request a suspension in the processing of the application, or submit new information indicating a significant change in the project design, ambient impact or emissions, this determination of completeness may be revised.

Upon issuance of the preliminary determination, we will publish a public notice of our intent to issue the permit. The comment period specified in the notice shall be at least 30 days. Please be advised that at anytime anyone may have full access to the application materials and other information you provide to us in connection with this permit action.

This letter is also to inform you of your rights to claim business confidentiality under 40 CFR 2, Subpart B for any part of or all of the information you provide us, and to document for our files that we have done so. If you do not make a claim of confidentiality for any of this material within 15 days of the date you receive this letter you will have waived your right to do so. The facility name and address may not be claimed as confidential.

If you wish to claim confidentiality, you must substantiate your claim. Your substantiation must address the points enumerated in the attachment to this letter, in accordance with 40 CFR 2.204(e).

If you should have any questions concerning a claim of confidentiality or any question concerning the review of your application, please contact Bob Baker of my staff at (415) 744-1258.

Sincerely,

Matt Haber
Chief, New Source Section
Air and Toxics Division

Attachment

cc: John McNurney, R.W. Beck and Assoc.

ATTACHMENT

INSTRUCTIONS FOR CLAIMING CONFIDENTIALITY

A. Pursuant to 40 CFR 2.204(e), your claim must address these points:

i. The portions of the information alleged to be entitled to confidential treatment;

ii. The period of time for which confidential treatment is desired by the business (e.g., until the occurrence of a specific event, or permanently);

iii. The purpose for which the information was furnished to EPA and the appropriate date of submission, if known;

iv. Whether a business confidentiality claim accompanied the information when it was received by EPA;

v. Measures taken by you to guard against the undesired disclosure of the information to others;

vi. The extent to which the information has been disclosed to others and the precautions taken in connection therewith;

vii. Pertinent confidentiality determinations, if any, by EPA or other Federal agencies, and a copy of any such determination or reference to it, if available;

viii. Whether you assert that disclosure of this information would be likely to result in substantial harmful effects on your business's competitive position, and if so, what those harmful effects would be, why they should be viewed as substantial; and an explanation of the casual relationship between disclosure and such harmful effect, and

ix. Whether you assert that the information is voluntarily submitted information and if so, whether any disclosure of the information would tend to lessen the availability to EPA of similar information in the future. "Voluntarily submitted information" is defined in 40 CFR Section 2.201(i) as business information in EPA's possession - -

a). The submission of which EPA has no statutory or contractual authority to require; and

b). The submission of which was not prescribed by statute or regulation as a condition of obtaining some benefit (or avoiding some disadvantage) under a regulatory program of general applicability, including such

regulatory programs as permit, licensing, registration, or certification programs, but excluding programs concerned solely or primarily with the award or administration by EPA of contracts or grants.

B. We will disclose information covered by your claim only to the extent provided for in 40 CFR Part 2, Subpart B Confidentiality of Business Information. Please address your claim and substantiation of confidentiality to the staff person mentioned in the letter at EPA Region 9 (A-5-1), 75 Hawthorne Street, San Francisco, CA 94105.

January 22, 1993

In Reply: A-5-1
Refer To: NSR 4-11
GU 93-01

Mr. John Benavente
General Manager
Guam Power Authority
P.O. Box 2977
Agana, Guam, U.S.A. 96910-2977

Dear Mr. Benavente:

This is in response to your Prevention of Significant Deterioration of Air Quality (PSD) application for an EPA Authority to Construct permit dated October 14, 1992, and received by this office October 16, 1992. The application is for a low-speed base-load diesel electric generator (nominally rated at 40-MW) to be located at the Cabras Power Plant.

After our initial review of your PSD application and all supporting information, EPA has found it to be incomplete and additional information is necessary in order to continue the processing of the application. We require the following additional information before we can continue review of your application:

1. Air Quality Analysis

A number of issues which we have discussed with your consultant, R.W. Beck, must be addressed prior to EPA deeming the PSD application complete. The most critical item of lacking information is on-site preconstruction ambient monitoring data for the Cabras area. EPA requires on-site meteorological (met) data and a refined modelling analysis for each criteria pollutant which is shown by preliminary modelling analysis to exceed the modelled significance level. EPA understands that Guam Power Authority (GPA) will begin collecting data from the met tower at Cabras beginning in March, 1993. Therefore, GPA will not have the required one year of on-site met data until, at the earliest, March 1994. After that time, we will require you to submit new ambient air modelling protocols using the on-site data as part of your PSD application for both the Cabras and Tenjo (Tenjo -- NSR 4-11, GU 93-02) projects.

CONCURRENCES

SYMBOL	A-5-1							
SURNAME	Sims							
DATE	1/22/93							

EPA Form 1320-1 (12-70)

OFFICIAL FILE COPY

*U.S.GPO:1988-0-205-471

2. BACT Analysis

We have determined that the BACT analyses are complete for both Cabras and Tenjo. However, no documentation of emission estimates (vendor data or emission calculations) was included in the PSD applications for either Cabras or Tenjo.

We therefore ask that you submit vendor data, vendor emission calculations, or other documentation used for the emission estimates contained in your PSD applications. Once we have this documentation, we will make a preliminary BACT determination for both the Cabras and Tenjo projects.

If you have any questions concerning the review of your application, please contact me at (415) 744-1254.

Sincerely,

OSB:

Matt M. Haber, Chief
New Source Section
Air and Toxics Division

cc: Ms. Peg Young
Ms. Rena Steinzor
Mr. Fred Castro
Ms. Karina O'Conner

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

10 April 1996

IN REPLY REFER TO: A-5-1
NSR 4-11
GU 93-01

Mr. John Benavente
General Manager
Guam Power Authority
P.O. Box 2977
Agana, Guam, U.S.A. 96910-2977

Dear Mr. Benavente:

This is in response to your October 14, 1992 application for an Environmental Protection Agency Approval to Construct pursuant to the Prevention of Significant Air Quality Deterioration regulations (40 CFR 52.21). The proposed project is the construction and operation of two low-speed base-load diesel electric generators (nominally rated at 40 MW) to be located at the Cabras Power Plant, Guam.

Our review of the information submitted indicates that pollutants would be emitted in the amounts as listed below:

Pollutants	Allowable Emission Rate tons/year
Sulfur Dioxide	6,203
Nitrogen Oxides	10,678
Particulate <PM10>	819
Volatile Organic Compounds (VOC)	841
Carbon Monoxide	964

On the basis of the information submitted by the Guam Power Authority, and the review criteria established by the above mentioned regulations, EPA has concluded that the project will not cause, or contribute to, a violation of any National Ambient Air Quality Standard. It is the intent of EPA to approve the project subject to the enclosed conditions.

A public notice in the local newspaper will announce the proposed project, EPA's proposed action, and the locations where EPA's technical analysis will be available. Comments on this proposed action may be submitted to the EPA San Francisco Regional Office, Attn: Bob Baker (A-5-1), for a period of thirty (30) days from the start of the public

comment period. Unless substantive new information is forthcoming, a final decision on the proposed action granting an Approval to Construct will be taken within thirty (30) days from the close of the public comment period. Should there be a significant degree of public comment with respect to the proposed action, EPA may hold a public hearing. The final permit action will be effective 30 days after its receipt by the Guam Power Authority, unless:

1. Review is requested under 40 CFR 124.19.

2. No comments requested a change in the draft permit, in which case the permit shall become effective immediately upon issuance.

Enclosed is a copy of the EPA's Ambient Air Quality Impact Report for the project. A copy of this report is available for public inspection at the Guam Environmental Protection Agency.

For questions concerning the technical review of your application please call Bob Baker of our New Source Section at (415) 744-1258.

Sincerely,

Matt Haber
Chief, New Source Section
Air & Toxics Division

Enclosure

cc: Guam EPA
Peg Young, R.W. Beck

AMBIENT AIR QUALITY IMPACT REPORT
(GU 93-01)

I. APPLICANT

Cabras Power Plant, Guam Power Authority (GPA)
P.O. Box 2977
Agana, Guam 96910

II. PROJECT LOCATION

The proposed expansion of the Cabras Power Plant (Units #3 and #4) will be located on Cabras Island near the western edge of the existing Cabras Plant boiler building. The project site is surrounded by the Philippine Sea from the west to the northeast, the main island of Guam from the northwest to the south, and Apra Harbor and the Orote Peninsula from the south to the west. Both existing and proposed facilities are located in an area designated as unclassified or attainment for all criteria pollutants[1].

III. PROJECT DESCRIPTION

The proposed Cabras plant expansion consists primarily of two low-speed No. 6 fuel oil diesel engine generating (DEG) units with a nominal rating of approximately 40,440 kW each. The proposed facility will use the existing cooling water intake and outfall for its once-through cooling system, the existing fuel storage and transfer facilities and the existing utilities such as potable water and sanitary sewer.

Ancillary equipment will be installed to support the diesel engines to increase the efficiency of the unit. The diesel engines will be cooled to avoid overheating which could damage the cylinders, pistons, and valves. Residual fuel oil will also be stored at the existing plant fuel storage facility in two new 420,000 gallon day tanks. The new tanks will be installed next to the other two storage tanks on the site.

IV. EMISSIONS FROM THE PROPOSED PROJECT

The annual emissions from the existing facility are summarized in Table 1. Table 2 presents estimated annual controlled and uncontrolled emissions for the proposed facility. The proposed controlled emissions were used in the air quality dispersion modeling. The emissions were computed by the applicant using vendor-supplied emissions estimates. SO_2 emissions calculated using a maximum sulfur in fuel content of 2.00% by weight for both the existing plant and the proposed diesel engines.

---

[1] On March 3, 1984 EPA designated the entire island of Guam as nonattainment for SO_2. This designation was based on modeled and monitored violations of NAAQS for SO_2 near two island power plants. EPA later redesignated Guam as attainment for SO_2 except for two areas with 3.5 km radii centered over the Piti and Tanguisson power plants. The Cabras facility is located in an area designed as nonattainment for SO_2. In 1993 the EPA issued an exemption under Section 325 of the CAA for the island allowing the addition of electric generating sources provided that a PSD permit review process is undertaken and that the NAAQS are maintained.

TABLE 1 - Emissions from the Existing Cabras Power Plant

Pollutant	Emission Rate (tons/yr)
Nitrogen Oxides NOx as NO_2	1,669
Particulate Matter (PM-10)	531
Carbon Monoxide (CO)	188
Sulfur Dioxide (SO_2) - Onshore	6,844
Sulfur Dioxide (SO_2) - Offshore	11,496

Note: SO_2 emissions are estimated as if the wind blows either 100% offshore or 100% onshore.

TABLE 2 - ESTIMATED EMISSIONS FROM THE DIESEL GENERATORS

Pollutant	Emission Rates[1]			
	Uncontrolled Emissions		Controlled Emissions[2]	
	lbs/hr/eng	tons/yr[3]	lbs/hr/eng	tons/yr
NO_x	2,193	19,211	1,219	10,678
SO_2[4]	660	5,547	738	6,203
CO	88	771	110	964
PM-10	88	771	93.5	819
VOC	88	771	96	841

(1) All emissions based on 100% load and 8,760 hours per year.

(2) Primary NO_x control methods are water/fuel emulsification in combination with ignition timing retardation.

(3) Annual emission rates are for both engines (Units 3 and 4) operating at 100% base load.

(4) Hourly rate is for 2.00% sulfur fuel. Annual rate assumes 2.00% sulfur fuel 90% of the time and 1.19% sulfur fuel 10% of the time.

V. APPLICABILITY OF THE PREVENTION OF SIGNIFICANT DETERIORATION (PSD) REGULATIONS

The PSD regulations (40 CFR 52.21) define a "major source" as any source type belonging to a list of 28 source categories which emits or has the "potential to emit" 100 tons per year (tpy) or more of any pollutant regulated under the Clean Air Act, or any other source type which emits or has the potential to emit such pollutants in amounts equal to or greater than 250 tpy. The Cabras Power Plant is an existing major source because it is one of the 28 specified source categories and has the potential to emit regulated pollutants in amounts greater than 100 tpy (see Table 1).

Under the PSD regulations, "significant net emissions increase", is defined as a net increase in emissions which would equal or exceed the significance levels [40 CFR 52.21 (b)(23)(i)] for each pollutant subject to regulation. The significant levels prescribed by the PSD regulations for the subject pollutants are:

Pollutant	Significant Emission Rate (tons/year)
Carbon Monoxide	100
Nitrogen Oxides	40
Sulfur Dioxide	40
M-10	15
Ozone	40 of VOC

A PSD review is required for all pollutants from a major source showing significant net increases in emissions in an area for which the applicable National Ambient Air Quality Standard (NAAQS) for those pollutants have not been exceeded (attainment area), or if the status of the area is unclassified. Guam Island has been designated as either attainment or unclassified for all criteria pollutants, with the exception of SO2. The area surrounding the Cabras Power Plant facility is currently designated non-attainment for SO2. By request of the Governor of Guam, in 1993 the EPA issued an exemption under Section 325 of the CAA for the island allowing the addition of electric generating sources provided that NAAQS are maintained. With regard to SO2, the exemption states that "Electric generating units to be constructed in the Cabras-Piti area must submit applications for PSD permits as though the area had been redesignated to attainment for the sulfur dioxide NAAQS". Therefore, a PSD review is required for all criteria pollutants (including SO_2) if the project would result in significant increases of the respective pollutants.

Table 2 shows that the net emission increases of NO_x, SO_2, CO, PM_{10} and VOC are greater than the significance levels as defined in the PSD regulations. Therefore, the source is subject to PSD review for NO_x, SO_2, CO, PM_{10} and VOC as follows:

1. Application of Best Available Control Technology (BACT);

2. Analysis of ambient air quality impacts from the project;

3. Analysis of air quality and/or visibility impacts on Class I areas; and

4. Analysis of impacts on soil and vegetation.

VI. BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

The PSD regulations require that a determination of BACT be made for each pollutant subject to review. BACT is defined as "..an emission limitation (including a visible emission standard) based on the maximum degree of reduction of each pollutant subject to regulation under the Act...which the Administrator, on a case-by-case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable for such source..."

For the GPA Cabras units, a BACT determination is required for NO_x, SO_2, CO, PM_{10} and VOC since they are all attainment pollutants which have a major or significant increase in emissions. Alternative BACT technologies for NO_x, SO_2, CO, PM_{10} and VOC are discussed below.

A. BACT for NO_x

The EPA RACT/BACT/LAER Clearinghouse (RBLC) was reviewed to identify appropriate NO_x control technologies to be considered for the BACT determination. Over 100 diesel engines for which BACT determinations had been made were reviewed. Alternative technologies examined for NO_x control included: Fuel Injection Timing Retard (FITR), FITR with water emulsification of fuel, Selective Catalytic Reduction (SCR), exhaust gas recirculation, inlet air humidification, and inlet air cooling. For NO_x, the applicant determined that SCR was technically infeasible for a diesel engine firing No. 6 fuel oil. SCR was also found to have significant environmental, economic and energy impacts. The next most stringent control technology after SCR was the combination of water/fuel emulsification and ignition timing retardation which was found to be the most technically and economically feasible option which provided the highest level of NO_x emissions control without significant adverse environmental impacts.

After reviewing the available data, EPA has concluded that the use of a combination of water/fuel emulsification and ignition timing retardation represents BACT for the control of NO_x emissions from the proposed diesel engines.

B. BACT for Carbon Monoxide and Hydrocarbons

The most stringent control technology for CO or VOC associated with diesel engine operation is an oxidation catalyst. The only other control option identified was combustion control. The oxidation catalyst was judged as not representing BACT because it is technically infeasible, and has significant environment and economic impacts. BACT was determined to be the minimum emission rates achievable through proper engine design, operation and maintenance.

After reviewing the available data, EPA has concluded that the use of combustion controls represents BACT for the control of CO and VOC emissions from the proposed diesel engines.

C. BACT for Sulfur Dioxide

In 1993 GPA requested, and was granted, exemption from the intermittent control systems provision of the CAA. As an alternative control strategy, the EPA is allowing the GPA to utilize the fuel switching protocol outlined in EPA's Cabras-Piti Area Intermittent Control Strategy (CPAICS) document. This protocol requires the use of 2.00% sulfur by weight No. 6 fuel oil during periods when the wind is blowing offshore (approximately 90% of the time). Low sulfur content fuel oil (1.19% by weight) must be used during periods when the wind is blowing onshore or when the wind is blowing less than 1.0 meters per second. These conditions occur approximately 10% of the time. Therefore, BACT for SO_2 should be determined to be intermittent fuel switching based on using 2.00% by weight sulfur fuel oil during offshore winds and 1.19% sulfur fuel oil during onshore winds, as determined in accordance with the provisions of the CPAICS Fuel Switching Protocol.

D. BACT for Particulates

The applicant reviewed the RBLC and other projects and concluded that no post-combustion particulate control such as electrostatic precipitators or baghouses have been employed on diesel engines. The high gas velocities and volumetric flow rates associated with diesel engines along with the high combustion efficiency of diesel engines make the application of post-combustion particulate control devices not cost effective. Instead, GPA proposes to control particulate emissions through combustion controls via proper engine design, operation and maintenance.

After reviewing the available data, EPA has concluded that the use of combustion controls represents BACT for the control of particulate emissions from the proposed diesel engines.

VII. AIR QUALITY IMPACTS

The PSD regulation require an air quality analysis to determine the impacts of the proposed project on ambient air quality. For all regulated pollutants emitted in significant quantities,

the analysis must consider whether the proposed project will cause a violation of (1) the applicable PSD increments, and (2) the National Ambient Air Quality Standards (NAAQS). A discussion on the general approach, air quality model selection, significant impact levels, PSD increment consumption, and compliance with ambient air quality standards, are presented below.

A. General Approach

Air quality modeling was used to determine the ambient impacts of the proposed expansion as well as impacts of the entire facility after the expansion is completed. Both screening and refined levels of modeling were performed for simple and complex terrain in accordance to the Guidance on Air Quality Models (Revised, EPA, 1986).

The receptor network for the screening analysis consisted of receptors spaced 100 m apart from 100 to 2,000 m, 200 m apart from 2,000 m to 4,000 m, and 500 m apart from 4,000 m to 5,000 m. Each receptor was assigned an elevation which corresponded to the highest terrain point surrounding the site at or near the given receptor distance from the site.

Two categories of receptor grids were used for the refined air quality analysis: (1) a coarse receptor grid consisted of a polar coordinate system, centered on the Piti Power Plant, with 36 direction radials separated by 10-degree increments and receptors placed at successive 1,000 m intervals out to 10,000 m. (2) a fine grid developed based on the results of the coarse grid analysis consisting of Cartesian coordinates with a 100 m resolution and covering the areas of the highest likelihood of ground level impact. Special, discrete receptors which were located on the Orote Peninsula.

Because of the fuel-switching that occurs at the Cabras and Piti power plants, the assessment of SO_2 impacts in the study area required two separate grids. The first grid described that part of the study area which is referred to as "onshore" based on GPA's fuel-switching procedures. The second grid described the remaining area referred to as "offshore".

B. Air Quality Model Selection

Both screening and refined modeling methods were used in the analysis. The Industrial Source Complex Short Term (ISCST2, dated 93109) with "worst-case" meteorology, the COMPLEX1 model (VALLEY option, dated 90095) were used for the preliminary screening analysis to determine (1) the operating load (50, 75 or 100 percent load) predicted to result in the highest air quality concentrations from the proposed facility and which would have the worst case impact, and (2) the significance of the worst-case impacts with respect to the regulatory modeling levels of significance.

The ISCST2 and COMPLEX1 were used with actual meteorological data to determine the impact that the facility would have on air quality. The regulatory default options and rural mode were selected for the refined analyses. Direction specific downwash calculations were made since all of the stacks are below Good Engineering Practice (GEP) stack heights.

The original air quality dispersion modeling for this project used five years (1987-1991) of recorded surface and upper air observations from the National Weather Station on Guam. Under the terms of the 1993 waiver under CAA Section 325, however, the EPA required the GPA to install a meteorological monitoring station near the Cabras Power Plant. After installation of the station, one full year (from March 1, 1993 to February 28, 1994) of surface meteorological data was collected and used for the most recent dispersion modeling.

C. Air Quality Analysis

Preliminary Analysis

The screening analysis identified those criteria pollutants which may be anticipated to have air quality impacts above the regulatory significance levels. All of the maximum predicted concentrations were above the significant impact levels except for CO. Therefore, full impact analyses are required for all of the pollutants except for CO. Since no significant preliminary modeling impacts exist within the impact area for carbon monoxide, no additional modeling is required.

Analysis of PSD Increment Consumption

The expansion of the Cabras facility constitutes the second PSD application on Guam, although the first PSD source, the Dededo facility, is not predicted to have a significant impact in the study area of the expansion. Several permanent changes have occurred at major stationary sources in the study area since the major source baseline dates were established (August 7, 1977 for PM_{10} and SO_2, and February 8, 1988 for NO_x). These changes have included the shutdown of the Inductance Power Barge, an increase in the stack heights for Piti units 1 through 5, the reduction of fuel oil sulfur content during on-shore winds and the start-up of the Manenggon Hills Power Plant. Further changes anticipated included the shut-down of Piti units 1, 2 and 3, the start-up of Cabras 3, the start-up of the Tenjo Power Plant, and the start-up of the Orote Power Plant. The PSD Class II increment analysis includes impacts from the following sources:

Cabras Units 3 & 4
Manenggon, Diesels 1 & 2,
Orote Base Load Diesels 1, 2 & 3, and
Tenjo Diesels 1-2 & 3-4.

The analysis is considered conservative since the increment expansion provided by the permanent changes was not included. The results of the increment analysis are summarized in Table 3 which shows that the predicted impacts from the proposed facility are below the allowable PSD Class II increments.

Table 3
PSD Class II Increment Analysis Results
(All Increment Consuming Sources in Area)

Pollutant	Averaging Period	Predicted Concentration ($\mu g/m^3$)	Class II Increment ($\mu g/m^3$)
SO_2 On-Shore	3-hour 24-hour Annual	461 76 10	512 91 20
SO_2 Off-Shore	3-hour 24-hour Annual	112 43 8	512 91 20
NO_x	Annual	13	25
PM-10	24-hour Annual	27.5 2	30 17

Analysis of Compliance with National Ambient Air Quality Standards

The NAAQS analysis consisted of an "interactive" analysis which was performed for the Section 325 petition submitted to the U.S. EPA. The analysis included impacts from the following power plants: Cabras facility and proposed expansion, Piti (boiler units 4 & 5), Orote Point (units 1-4), Tenjo (units 1-4), and Manenggon (units 1 & 2). ISCST3 was used to predict the maximum annual average and the highest second highest (HSH) 1-hour, 3-hour and 24-hour concentrations. The short-term impacts were predicted to occur predominantly in the complex terrain of the onshore wind sector, and the long-term averages were predicted to occur predominantly in the offshore wind sector. The results of the analysis are summarized in Table 4. The maximum annual and the HSH 1-hour, 3-hour and 24-hour concentrations were compared to the applicable NAAQS. The results demonstrate that the operation of DEG will not cause or contribute to a violation of the NAAQS.

Table 4
Predicted Air Quality Impacts from the Project (ISCST3)
($\mu g/m^3$)

Pollutant	Averaging Time	Maximum Predicted Impact (Units 3 & 4 Only)	Maximum Predicted Impact (All Sources)	NAAQS
SO_2 On-Shore	3-hour 24-hour Annual	231 29 0.7	1,171 220 10	1,300 365 80
SO_2 Off-Shore	3-hour 24-hour Annual	112 34 6	975 300 73	1,300 365 80
NO_x	Annual	11	30	100
PM_{10}	24-hour Annual	6 1	30 6	150 50
CO	1-hour 8-hour	153 19	689 187	40,000 10,000

VIII. ADDITIONAL IMPACT ANALYSIS

In addition to assessing the ambient air quality impacts expected from a proposed new source or modification, the PSD regulations require that certain other impacts be considered. These additional impacts are those on visibility, soils and vegetation, and growth.

A. Visibility

The PSD regulations require that PSD permit applications address the potential impairment to visibility in Class I areas. Since there are no PSD Class I areas or identified scenic vistas on Guam, the visibility analysis is not necessary.

B. Soils and Vegetation

No listed endangered or sensitive species occur in the project area. Since all predicted concentrations are below NAAQS which were established to protect the environment, no significant, detrimental impacts are expected to occur to vegetation.

C. Growth Impacts

The proposed expansion is a response to increased electric demand caused by growth not related to GPA activities and there will not be any new employment or products, other than energy, resulting from the facility. Thus, no direct impact on local growth is expected.

IX. ENDANGERED SPECIES ACT

Pursuant to Section 7 of the Endangered Species Act, EPA is required to initiate consultation with the Fish and Wildlife Service (FWS) if any action, including permit issuance, might jeopardize the continued existence of endangered or threatened species or adversely modify their critical habitat.

No terrestrial bird, mammal, or reptile species that are federally or territorially listed are known to occur in the vicinity of the proposed facility. Since all predicted concentrations are below NAAQS which were established to protect the environment, no significant, detrimental impacts will occur to vegetation.

X. CONCLUSIONS AND PROPOSED ACTION

Based on the information supplied by the applicant, Guam Power Authority, and our review of analyses contained in the permit application, it is the preliminary determination of the EPA that the proposed project will employ Best Available Control Technology and will not cause or contribute to a violation of the NAAQS or an exceedance of any PSD increment. Therefore, EPA intends to issue to Guam Power Authority an Authority to Construct/Modify for Units 3 & 4 at the Cabras Power Plant, subject to following permit conditions.

PERMIT CONDITIONS

I. Permit Expiration

This approval to Construct/Modify shall become invalid (1) if construction is not commenced (as defined in 40 CFR 52.21(b)(8)) within 18 months after the approval takes effect, (2) if construction is discontinued for a period of 18 months or more, or (3) if construction is not completed within a reasonable time.

II. Notification of Commencement of Construction and Startup

The Regional Administrator shall be notified in writing of the anticipated date of initial startup (as defined in 40 CFR 60.2(o)) of each facility of the source not more than sixty (60) days nor less than thirty (30) days prior to such date and shall be notified in writing of the actual data of commencement of construction and startup within fifteen (15) days after such date.

III. Facilities Operation

All equipment, facilities, and systems installed or used to achieve compliance with the terms and conditions of this Approval to Construct/Modify shall at all times be maintained in good working order and be operated as efficiently as possible so as to minimize air pollutant emissions.

IV. Malfunction

The Regional Administrator shall be notified by telephone within 48 hours following any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner which results in an increase in emissions above any allowable emissions limit stated in Section X of these conditions. In addition, the Regional Administrator shall be notified in writing within fifteen (15) days of any such failure. This notification shall include a description of the malfunctioning equipment or abnormal operation, the date of the initial failure, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed under Section X of these conditions, and the methods utilized to restore normal operations. Compliance with this malfunction notification provisions shall not excuse or otherwise constitute a defense to any violations of this permit or of any law or regulations which such malfunction may cause.

V. Right to Entry

The Regional Administrator, the head of the State Air Pollution Control Agency, the head of the responsible local Air Pollution Control Agency, and/or their authorized representative, upon the presentation of credentials, shall be permitted:

A. to enter upon the premises where the source is located or in which any records are required to be kept under the terms and conditions of this Approval to Construct/Modify; and

B. at reasonable times to have access to and copy any records required to be kept under the terms and conditions of the Approval to Construct/Modify: and

C. to inspect any equipment, operation, or method required in this Approval to Construct/Modify; and

D. to sample emissions from the source.

VI. Transfer of Ownership

In the event of any changes in control or ownership of facilities to be constructed or modified, this Approval to Construct/Modify shall be binding on all subsequent owners and operators. The applicant shall notify the succeeding owner and operator of the existence of this Approval to Construct/Modify and its conditions by letter, a copy of which shall be forwarded to the Regional Administrator and the State and local Air Pollution Control Agency.

VII. Severability

The provisions of this Approval to Construct/Modify are severable, and, if any provision of this Approval to Construct/Modify is held invalid, the remainder of this Approval to Construct/Modify shall not be affected thereby.

VIII. Other Applicable Regulations

The owner and operator of the proposed project shall construct and operate the proposed stationary source in compliance with all other applicable provisions of 40 CFR Parts 52, 60 and 61 and all other applicable federal, state and local air quality regulations.

IX. Paperwork Reduction Act

Any requirements established by this permit for the gathering and reporting of information are not subject to review by the Office of Management and Budget ("OMB") under the Paperwork Reduction Act because this permit is not an "information collection request" within the meaning of 44 U.S.C. §§ 3502(4) & (11), 3507, 3512, and 3518. Furthermore, this permit and any information gathering and reporting requirements established by this permit are exempt from OMB review under the Paperwork Reduction Act because it is directed to fewer than ten persons. 44 U.S.C. § 3502(4), (11); 5 C.F.R. § 1320.5(a).

X. Special Conditions

A. Certification

GPA shall notify the EPA in writing of compliance with Special Conditions X.B and X.J and shall make such notification within (15) days of such compliance. This letter must be signed by a responsible representative of GPA.

B. Air Pollution Control Equipment

GPA shall install, continuously operate and maintain the following air pollution controls to minimize emissions. Controls listed shall be fully operational upon startup of the proposed equipment and, prior to optimization testing, shall be operated at the following rates:

1. Fuel Injection Timing Retard (FITR) of 2 degrees (or equivalent).

2. Water/fuel emulsification at an injection rate of not less than 33% water to total water/fuel mixture by volume.

Upon completion of the optimization testing, EPA may set a new degree of FITR or a new water/fuel injection ratio.

C. Performance Tests

1. Within 60 days of achieving the maximum production rate of the proposed equipment but not later than 180 days after initial startup of the equipment as defined in 40 CFR 60.2(o), and at such other times as specified by the EPA, GPA shall conduct performance tests for NO_x, SO_2, CO, VOC and PM and furnish the EPA (Attn: A-3-3) a written report of the results of such test. The tests for NO_x, SO_2, CO, VOC and PM shall be conducted on an annual basis and at the maximum operating capacity of the facilities being tested. Upon written request (Attn: A-3-3) from GPA, EPA may approve the conducting of performance test as a lower specified production rate. After initial performance tests and upon written request and adequate justification from GPA, EPA may waive a specified annual test for the facility.

2. Performance tests for the emissions of SO_2, NO_x, CO, VOC and PM shall be conducted and the results reported in accordance with the test methods set forth in 40 CFR 60, Part 60.8 and Appendix A. The following test methods shall be used:

   a. Performance tests for the emissions of SO_2 shall be conducted using EPA Methods 1-4 and 6C.

   b. Performance tests for the emissions of PM shall be conducted using EPA Methods 1-5.

   c. Performance tests for the emissions of NO_x shall be conducted using EPA Methods 1-4 and 7E.

   d. Performance tests for the emissions of CO shall be conducted using EPA Methods 1-4 and 10.

e. Performance tests for the emissions of VOC shall be conducted using EPA Methods 1-4 and 25A.

The EPA (Attn: A-3-3) shall be notified in writing at least 30 days prior to such test to allow time for the development of an approvable performance test plan and to arrange for an observer to be present at the test.

Such prior approval shall minimize the possibility of EPA rejection of test results for procedural deficiencies. In lieu of the above-mentioned test methods, equivalent methods may be used with prior written approval from the EPA.

3. For performance test purposes, sampling ports, platforms and access shall be provided by GPA on the diesel engine exhaust systems in accordance with 40 CFR 60.8(e).

D. Operating Limitations

1. The sulfur content in the fuel oil used to fire the diesel engine shall not exceed 2.0 percent by weight during periods when the wind is blowing off-shore and 1.19 percent when the wind is blowing on-shore. Off-shore and on-shore wind directions are defined in the protocol for fuel switching titled *Cabras-Piti Area Intermittent Control Strategy* and referenced in 40 CFR 69.11(a)(3)(i).

2. GPA shall install water meters and non-resetting fuel meters to monitor and record the fuel consumption and the percent of water-to-fuel mix being fired in the diesel engines. All information, including fuel sulfur content, fuel use, percent water in the fuel mix and hours of operation, shall be recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, calculation and record.

3. GPA shall not operate any of the Cabras diesel engines below 50 percent of rated load except during periods of startup, shutdown, testing or maintenance.

E. Emissions Limits for SO_2

On and after the date of startup, GPA shall not discharge or cause the discharge into the atmosphere from each diesel engine SO_2 in excess of 738 lbs/hr averaged over a three hour period.

F. Emission Limits for PM

On and after the date of startup, GPA shall not discharge or cause the discharge into the atmosphere from each diesel engine PM_{10} in excess of 93.5 lbs/hr averaged over a three hour period.

On or after the date of startup, GPA shall not discharge or cause the discharge into the atmosphere from the engine exhaust stack gases which exhibit an opacity of 20% or greater for any period of periods aggregating more than six minutes in any one hour except during periods of startup or shutdown.

EPA may set a new lower allowable emission rate for the above emission limits after reviewing the performance test results required under Special Conditions C.

If the PM emission limit is revised, the difference between the PM emission limit set forth above and a revised lower PM emission limit shall not be allowed as an emission offset for future construction or modification.

G. Emission Limits for NO_x

On and after the date of startup, GPA shall not discharge or cause the discharge into the atmosphere from each diesel engine NO_x in excess of the more stringent of 1219 lbs/hr or 950 ppm at 15% O_2 averaged over a three hour period.

Subsequent to full scale operation of Unit No. 4, GPA shall conduct an optimization study of the FITR and water emulsification systems. The study shall consist of varying the degree of FITR and the percentage of water-to-fuel mix to determine the optimal NO_x removal efficiency, taking into account impacts on fuel efficiency and on SO_2 and CO emission rates. Upon completion of the study and after reviewing the performance test results EPA may set a new lower allowable emission rate and/or a new degree of FITR and/or rate of water/fuel emulsification.

If the NO_x emission limit is revised, the difference between the NO_x emission limit set forth above and a revised lower NO_x emission limit shall not be allowed as an emission offset for future construction or modification.

H. Emission Limits for CO

On and after the date of startup, GPA shall not discharge or cause the discharge into the atmosphere from each diesel engine CO in excess of 110 lbs/hr averaged over a three hour period.

EPA may set a new lower allowable emission rate for the above emission limits after reviewing the performance test results required under Special Conditions C. If the CO emission limit is revised, the difference between the CO emission limit set forth above and a revised lower CO emission limit shall not be allowed as an emission offset for future construction or modification.

I. Emission Limits for VOC

On and after the date of startup, GPA shall not discharge or cause the discharge into the atmosphere from each diesel engine VOC in excess of 96 lbs/hr averaged over a three hour period.

EPA may set a new lower allowable emission rate for the above emission limits after reviewing the performance test results required under Special Conditions C.

If the VOC emission limit is revised, the difference between the VOC emission limit set forth above and a revised lower VOC emission limit shall not be allowed as an emission offset for future construction or modification.

J. Continuous/Predictive Emission Monitoring

1. Prior to the date of startup and thereafter, GPA shall install, maintain and operate the following continuous monitoring systems (CEM) in the main stack:

   a. A continuous monitoring system to measure stack gas NO_x concentrations. The system shall meet EPA monitoring performance specification (40 CFR 60.13 and 40 CFR 60, Appendix B, Performance Specifications 2 and 3).

   b. A continuous monitoring system to measure stack gas volumetric flow rates. The system shall meet EPA performance specifications (40 CFR Part 52, Appendix E).

2. Alternatively, instead of a CEM system, GPA may install a Predictive Emission Monitoring system (PEM) for determining stack gas volumetric flow rates and NOx concentrations. The system shall monitor engine operating conditions and predict NOx emission rates as specified in a plan submitted to EPA for approval within 360 days of the initial startup of the facility. The plan shall identify the operating conditions to be monitored and meet all of the requirements of 40 CFR 75, Subpart E, including an application for certification of an alternative monitoring system.

3. GPA shall maintain a file of all measurements, including continuous monitoring systems evaluations; all continuous monitoring systems or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; performance and all other information required by 40 CFR 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports and records.

4. GPA shall notify EPA (Attn: A-3-3) of the date which demonstration for the continuous monitoring system (if applicable) performance commences (40 CFR 60.13). This date shall be no later than 60 days after startup.

5. GPA shall submit a written report of all excess emissions to EPA (Attn: A-3-3) for every calendar quarter. The report shall include the following:

   a. The magnitude of the excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factors used, and the date and time of commencement and compilation of each time period of excess emissions.

   b. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the engine exhaust systems. The nature and cause of any malfunction (if known) and the corrective action taken or preventative measures adopted shall also be reported.

   c. The date and time identifying each period during which the continuous monitoring system or PEM was inoperative except for zero and span checks, and the nature of the system repairs or adjustments.

   d. When no excess emissions have occurred or the continuous monitoring system or PEM has not been imperative, repaired, or adjusted, such information shall be stated in the report.

   e. Excess emissions shall be defined as any 3-hour period during which the average emissions of NO_x, as measured by the CEM, or predicted by the PEM, exceeds the maximum emission limits set forth in Condition X.G.

6. Excess emission indicted by the CEM or PEM system shall be considered violations of the applicable emission limit for the purpose of this permit.

7. If a CEM system is installed, then not less than 90 days prior to the date of startup of the facility, GPA shall submit to the EPA (Attn: A-3-3) a quality assurance project plan for the certification and operation of the continuous emission monitors. Such a plan shall conform to the EPA document "Guidelines for Developing a Quality Assurance Project Plan" (QAMS 005/80). Continuous emission monitoring may not begin until the QA project plan has been approved by the EPA Region 9.

XI. Agency Notifications

All correspondence as required by this Approval to Construct/Modify shall be forwarded to:

A. Director, Air and Toxics Division (Attn: A-3-3)
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

B. Administrator
Guam Environmental Protection Agency
P.O. Box 22439 GMF
Barrigada, Guam 96921